IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: **Burton et al.**	§	
	§	Group Art Unit: **2144**
Serial No. **10/739,438**	§	
	§	Examiner: **Anwari, Maceeh**
Filed: **December 18, 2003**	§	
	§	
For: **Generic Method for Resource Monitoring Configuration in Provisioning Systems**	§ § §	

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

35525
PATENT TRADEMARK OFFICE
CUSTOMER NUMBER

APPEAL BRIEF (37 C.F.R. 41.37)

This brief is in furtherance of the Notice of Appeal, filed in this case on October 15, 2007.

A fee of $510.00 is required for filing an Appeal Brief. Please charge this fee to IBM Corporation Deposit Account No. 09-0447. No additional fees are believed to be necessary. If, however, any additional fees are required, I authorize the Commissioner to charge these fees which may be required to IBM Corporation Deposit Account No. 09-0447. No extension of time is believed to be necessary. If, however, an extension of time is required, the extension is requested, and I authorize the Commissioner to charge any fees for this extension to IBM Corporation Deposit Account No. 09-0447.

REAL PARTY IN INTEREST

The real party in interest in this appeal is the following party: International Business Machines Corporation of Armonk, New York.

RELATED APPEALS AND INTERFERENCES

With respect to other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in the pending appeal, there are no such appeals or interferences.

STATUS OF CLAIMS

A.   TOTAL NUMBER OF CLAIMS IN APPLICATION

Claims in the application are: 1-25

B.   STATUS OF ALL THE CLAIMS IN APPLICATION

1. Claims canceled: NONE
2. Claims withdrawn from consideration but not canceled: NONE
3. Claims pending: 1-25
4. Claims allowed: NONE
5. Claims rejected: 1-25
6. Claims objected to: NONE

C.   CLAIMS ON APPEAL

The claims on appeal are: 1-25

STATUS OF AMENDMENTS

No amendments were made after the Final Office Action dated September 7, 2007.

SUMMARY OF CLAIMED SUBJECT MATTER

A.   CLAIM 1 - INDEPENDENT

The subject matter of claim 1 is directed to a method for provisioning resource monitors (see *Specification*, page 4, lines 3-15). At least one monitor specification (**153** in **Figure 1B, 410** in **Figure 4**) is provided (see *Specification*, page 10, lines 12-23). A monitor specification includes a definition of parameters for a resource monitor (see *Specification*, page 12, lines 5-15). The monitor specification includes both a deployment profile specification (**156** in **Figure 1B, 302** in **Figure 3**), defining a list of parameters that must be defined for each instance of the resource monitor that is deployed, and a response profile specification (**157** in **Figure 1B, 304** in **Figure 3**), defining parameters that are returned by deploying the resource monitor (see *Specification*, page 12, line 5, through page 13, line 5). At least one resource specification (**151** in **Figure 1B, 402** in **Figure 4**) is provided (see *Specification*, page 7, line 27, through page 8, line 11). A resource specification includes a definition of parameters that must be defined for each instance of a resource (see *Specification*, page 7, line 27, through page 8, line 11). The resource is the resource to be monitored (see *Specification*, page 9, lines 27-29). At least one monitor specification is associated with a resource specification to form at least one resource monitor instance configuration profile (**155** in **Figure 1B, 900** in **Figure 9**) (see *Specification*, page 10, lines 12-23). The at least one resource monitor instance configuration profile is stored (**1014** in **Figure 10A**) (see *Specification*, page 19, lines 17-18).

B.   CLAIM 12 - INDEPENDENT

The subject matter of claim 12 is directed to an apparatus comprising a processor running a provisioning system (**400** in **Figure 4**) in a network data processing system (**102** in **Figure 1A**) for provisioning resource monitors (see *Specification*, page 4, lines 3-15). The apparatus provides means for providing at least one monitor specification (**153** in **Figure 1B, 410** in **Figure 4**) (see *Specification*, page 10, lines 12-23). A monitor specification includes a definition of parameters for a resource monitor (see *Specification*, page 12, lines 5-15). The monitor specification includes both a deployment profile specification (**156** in **Figure 1B, 302** in **Figure**

3), defining a list of parameters that must be defined for each instance of the resource monitor that is deployed, and a response profile specification (**157** in **Figure 1B**, **304** in **Figure 3**), defining parameters that are returned by deploying the resource monitor (see *Specification*, page 12, line 5, through page 13, line 5). The apparatus provides means for providing at least one resource specification (**151** in **Figure 1B**, **402** in **Figure 4**) (see *Specification*, page 7, line 27, through page 8, line 11). A resource specification includes a definition of parameters that must be defined for each instance of a resource (see *Specification*, page 7, line 27, through page 8, line 11). The resource is the resource to be monitored (see *Specification*, page 9, lines 27-29). The apparatus provides means for associating at least one monitor specification with a resource specification to form at least one resource monitor instance configuration profile (**155** in **Figure 1B**, **900** in **Figure 9**) (see *Specification*, page 10, lines 12-23). The apparatus provides means for storing the at least one resource monitor instance configuration profile (**1014** in **Figure 10A**) (see *Specification*, page 19, lines 17-18).

C.   CLAIM 23 - INDEPENDENT

The subject matter of claim 23 is directed to a computer program product comprising a computer recordable-type medium having encoded thereon computer usable program code (**Figures 5A**, **5B**, and **5C**) for use within a data processing system (**Figure 1A**) for provisioning resource monitors (see *Specification*, page 4, lines 3-15). The computer program product provides computer usable program code for providing at least one monitor specification (**153** in **Figure 1B**, **410** in **Figure 4**) (see *Specification*, page 10, lines 12-23). A monitor specification includes a definition of parameters for a resource monitor (see *Specification*, page 12, lines 5-15). The monitor specification includes both a deployment profile specification (**156** in **Figure 1B**, **302** in **Figure 3**), defining a list of parameters that must be defined for each instance of the resource monitor that is deployed, and a response profile specification (**157** in **Figure 1B**, **304** in **Figure 3**), defining parameters that are returned by deploying the resource monitor (see *Specification*, page 12, line 5, through page 13, line 5). The computer program product provides computer usable program code for providing at least one resource specification (**151** in **Figure 1B**, **402** in **Figure 4**) (see *Specification*, page 7, line 27, through page 8, line 11). A resource specification includes a definition of parameters that must be defined for each instance of a resource (see

Specification, page 7, line 27, through page 8, line 11). The resource is the resource to be monitored (see *Specification*, page 9, lines 27-29). The computer program product provides computer usable program code for associating at least one monitor specification with a resource specification to form at least one resource monitor instance configuration profile (**155** in **Figure 1B, 900** in **Figure 9**) (see *Specification*, page 10, lines 12-23). The computer program product provides computer usable program code for storing the at least one resource monitor instance configuration profile (**1014** in **Figure 10A**) (see *Specification*, page 19, lines 17-18).

D.   CLAIM 2 - DEPENDENT

The subject matter of claim 2, which depends from independent claim 1, is directed to a method further comprising retrieving a resource monitor instance configuration profile (**900** in **Figure 9**) for an instance of a given resource monitor (**604, 906**) assigned to an instance of a given resource (**IHS** in **Figure 6**) (see *Specification*, on page 5, lines 13-17; on page 8, lines 10-11; on page 10, lines 12-23; and on page 18, lines 9-28).

E.   CLAIM 3 - DEPENDENT

The subject matter of claim 3, which depends from independent claim 1 through dependent claim 2, is directed to a method further comprising receiving a selection of a given resource monitor (**604, 906**) to be provisioned for the instance of the given resource (**IHS** in **Figure 6**); and storing a monitor configuration profile for the given resource monitor in association with the resource monitor instance configuration profile (**900** in **Figure 9**) (see *Specification*, on page 5, lines 13-17; on page 8, lines 10-11; on page 10, lines 12-23; on page 15, line 18, through page 16, line 15; and on page 18, lines 9-28).

F.   CLAIM 13 - INDEPENDENT

The subject matter of claim 13, which depends from independent claim 12, is directed to an apparatus of further comprising means for retrieving a resource monitor instance configuration profile (**900** in **Figure 9**) for an instance of a given resource monitor (**604, 906**) assigned to an

instance of a given resource (**IHS** in **Figure 6**) (see *Specification*, on page 5, lines 13-17; on page 8, lines 10-11; on page 10, lines 12-23; and on page 18, lines 9-28).

G.   CLAIM 14 – INDEPENDENT

The subject matter of claim 14, which depends from independent claim 12 through dependent claim 13, is directed to an apparatus further comprising means for receiving a selection of a given resource monitor (**604, 906**) to be provisioned for the instance of the given resource (**IHS** in **Figure 6**); and means for storing a monitor configuration profile for the given resource monitor in association with the resource monitor instance configuration profile (**900** in **Figure 9**) (see *Specification*, on page 5, lines 13-17; on page 8, lines 10-11; on page 10, lines 12-23; on page 15, line 18, through page 16, line 15; and on page 18, lines 9-28).

H.   CLAIM 24 - INDEPENDENT

The subject matter of claim 24, which depends from independent claim 23, is directed to a computer program product further comprising computer usable program code for retrieving a resource monitor instance configuration profile (**900** in **Figure 9**) for an instance of a given resource monitor (**604, 906**) assigned to an instance of a given resource (**IHS** in **Figure 6**) (see *Specification*, on page 5, lines 13-17; on page 8, lines 10-11; on page 10, lines 12-23; and on page 18, lines 9-28).

I.   CLAIM 25 – INDEPENDENT

The subject matter of claim 25, which depends from independent claim 23 through dependent claim 24, is directed to a computer program product further comprising computer usable program code for receiving a selection of a given resource monitor (**604, 906**) to be provisioned for the instance of the given resource (**IHS** in **Figure 6**); and computer usable program code for storing a monitor configuration profile for the given resource monitor in association with the resource monitor instance configuration profile (**900** in **Figure 9**) (see *Specification*, on page 5, lines 13-17; on page 8, lines 10-11; on page 10, lines 12-23; on page 15, line 18, through page 16, line 15; and on page 18, lines 9-28).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The grounds of rejection to review on appeal are as follows:

A.   Whether claims 1-25 are indefinite under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter which Appellant regards as the invention.

B.   Whether claims 1-25 are anticipated under 35 U.S.C. § 102(b) by *Lumelsky et al.*, United States Patent No.: 6,460,082, hereinafter referred to as *Lumelsky*.

ARGUMENT

A. GROUND OF REJECTION 1 (Claims 1-25)

The Examiner has rejected claims 1-25 under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This rejection is respectfully traversed.

The Office Action states:

> It is unclear for one of ordinary skill in the art to determine what the applicant is claiming when referring to phrases, such as "resource monitor instance configuration profile for an instance of a given resource monitor assigned to an instance of a given resource," with out effectively defining the terms within the disclosure. Ultimately failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The examiner will interpret the term instance to be one occurrence of any event.

Final Office Action dated September 7, 2007, page 2.

Claims 2, 13, and 24 recite "retrieving a resource monitor instance configuration profile for an instance of a given resource monitor assigned to an instance of a given resource." In other words, a particular instance of a given resource monitor, such as "PCPMM" in **Figure 6** that monitors the attributes or states of a resource, is assigned to a particular instance of a given resource, such as an IBM HTTP server named "IHS" in **Figure 6**. A resource monitor instance configuration profile (see **906** and **900** in **Figure 9**) is retrieved for the particular instance of the given resource monitor that is assign to the particular instance of the given resource. Page 18, lines 9-28, of the specification states that "**Figure 9** depicts the relationship between a monitor instance and its configuration profile. The configuration profile defines the values of the parameters that are defined by the monitor specification. The monitor instance **906** refers to a configuration profile **900**. This configuration profile is composed of a deployment profile **902** and a response profile **904**. The deployment profile defines the values of each of the parameters needed to provision the monitor instance while the response profile contains the values of the parameters defined as a consequence of the provisioning of the monitor. For each parameter, the deployment profile **902** contains, for example, a reference to the deployment parameter specification **302**, the name of the parameter, the value assigned to that parameter, a manual intervention value indicated whether or not manual intervention to define the parameter is

required and manual intervention instructions. The response profile **904** contains the same information for each parameter. In this case, the reference is to a response parameter specification **304**."

Figure 1B depicts the relation of resource specifications, resource instances, monitor specifications and monitor instances and their configuration profiles. See the specification on page 5, lines 13-17. The specification on page 8, lines 10-11, states that instances of a resource are resource entities, which are grouped by their specification. Page 10, lines 12-23 states that "the administrator may access resource specifications **151** or resource instances **152** to identify the types of monitors; that is, monitor specifications **153**, that should be used to monitor specific resource instances. The monitor specifications contain a configuration profile specification **154** that may be used to present parameters to an administrator, who, in turn, provides values for a specific monitor instance **158**. These are used to create a monitor instance configuration profile **155** which may then be stored in the database in association with the corresponding resource instance."

In view of the above, Appellants respectfully submit that the specification does support the claim language recited in these claims. Therefore, Appellants respectfully request withdrawal of the rejection of claims 1-25 under 35 U.S.C. § 112, second paragraph.

B. GROUND OF REJECTION 2 (Claims 1-25)

The Examiner has rejected claims 1-25 under 35 U.S.C. § 102(b) as being anticipated by *Lumelsky et al.*, United States Patent No.: 6,460,082, hereinafter referred to as *Lumelsky*. This rejection is respectfully traversed.

B.1. Claims 1, 11, 12, 22, and 23

With respect to independent claims 1, 12, and 23, the Final Office Action states:

Claim 1:
    (Currently Amended) A method for provisioning resource monitors, the method comprising:
    providing at least one monitor specification, wherein a monitor specification includes a definition of parameters for a resource monitor, and wherein the monitor specification includes both a deployment profile specification, defining a list of parameters that must be defined for each instance of the resource monitor that is deployed, and a response profile specification,

defining parameters that are returned by deploying the resource monitor (Figure 1-4 & 7-8(a-b) and Col. 7, lines 38-57 & Col. 13 lines 33-67; resource envelope, meta-data, resources management feedback and resource management interface); providing at least one resource specification, wherein a resource specification includes a definition of parameters that must be defined for each instance of a resource, and wherein the resource is the resource to be monitored (Figure 1-4 & 7-8(a-b) and Col. 7, lines 38-57 & Col. 13 lines 33-67; resource envelope, resource envelope adjustments, meta-data, resources management feedback and resource management interface); [[and]] associating at least one monitor specification with a resource specification to form at least one resource monitor instance configuration profile; and storing the at least one resource monitor instance configuration profile (Figure 1-4 & 7-8(a-b) and Col. 7, lines 38-57 & Col. 13 lines 33-67 & Col. 8 lines 1-21; resource envelope, meta-data, service objects, service unit management module and storage bins and databases).

...

Claims 12-22 list all the same elements of claims 1-11, but in apparatus form rather than method form. Therefore, the supporting rationale of the rejection to claims 1-11 applies equally as well to claims 12-22.

Claims 23-25 list all the same elements of claims 1-3, but in a computer program product form rather than method form. Therefore, the supporting rationale of the rejection to claims 1-3 applies equally as well to claims 23-25.

Final Office Action dated September 7, 2007, pages 3-4 and 7.

Claim 1, which is representative of the other rejected independent claim 12 and 23 with regard to similarly recited subject matter, reads as follows:

1.   A method for provisioning resource monitors, the method comprising:
          providing at least one monitor specification, wherein a monitor specification includes a definition of parameters for a resource monitor, and wherein the monitor specification includes both a deployment profile specification, defining a list of parameters that must be defined for each instance of the resource monitor that is deployed, and a response profile specification, defining parameters that are returned by deploying the resource monitor;
          providing at least one resource specification, wherein a resource specification includes a definition of parameters that must be defined for each instance of a resource, and wherein the resource is the resource to be monitored;
          associating at least one monitor specification with a resource specification to form at least one resource monitor instance configuration profile; and
          storing the at least one resource monitor instance configuration profile.
(emphasis added)

A prior art reference anticipates the claimed invention under 35 U.S.C. § 102 only if every

element of a claimed invention is identically shown in that single reference, arranged as they are in the claims. *In re Bond*, 910 F.2d 831, 832, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990). All limitations of the claimed invention must be considered when determining patentability. *In re Lowry*, 32 F.3d 1579, 1582, 32 U.S.P.Q.2d 1031, 1034 (Fed. Cir. 1994). Anticipation focuses on whether a claim reads on the product or process a prior art reference discloses, not on what the reference broadly teaches. *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 218 U.S.P.Q. 781 (Fed. Cir. 1983). Appellants respectfully submit that *Lumelsky* does not identically show every element of the claimed invention arranged as they are in the claims. Specifically, *Lumelsky* does not teach or suggest "providing at least one monitor specification, wherein a monitor specification includes a definition of parameters for a resource monitor, and wherein the monitor specification includes both a deployment profile specification, defining a list of parameters that must be defined for each instance of the resource monitor that is deployed, and a response profile specification, defining parameters that are returned by deploying the resource monitor," as recited in independent claims 1, 12, and 23. In addition, *Lumelsky* does not teach or suggest "associating at least one monitor specification with a resource specification to form at least one resource monitor instance configuration profile," and "storing the at least one resource monitor instance configuration profile," as recited in independent claims 1, 12, and 23.

Lumelsky is directed to a system and method for configuring service-oriented resources suitable for the resource management in a media server and more particularly, for resource configuration across distributed media servers. Heterogeneous media serves are configured in terms of homogeneous service-oriented resource units each used to represent a resource allocation commitment from a participating server for provisioning a particular media service on demand. A service unit associated with each different service supported by a media server represents an envelope of resource requirements as needed for provisioning a service. The method includes generating a resource envelope, and additionally compensating, at a media server, for differences between true resource utilization and resource envelope projected by a service unit. Each service unit also comprises a signature representing metadata used to control access to a service unit by defining rights, privileges, and characteristics of services that may use that particular server unit. See *Lumelsky*, Abstract. *Lumelsky* is not directed to the specific needs of provisioning **resource monitors**. *Lumelsky* is directed to provisioning multimedia utilities to

paying subscribers. In *Lumelsky*, **resource monitors** are used to monitor resource utilization when provisioning a media service. A native reservation management process (520), as shown in FIG. 5 of *Lumelsky*, is responsible for monitoring resource consumption. Request statistics are monitored by a Service Control Plane (SCP), which functions as an intermediary control device between clients and servers in a distributed computer network. Existing interfaces are provided by the server operating system to permit monitoring of resource reservation   exceptions. *Lumelsky* does not teach or suggest "providing at least one monitor specification, wherein a monitor specification includes a definition of parameters for a resource monitor, and wherein the monitor specification includes both a deployment profile specification, defining a list of parameters that must be defined for each instance of the resource monitor that is deployed, and a response profile specification, defining parameters that are returned by deploying the resource monitor," as recited in independent claims 1, 12, and 23. In addition, *Lumelsky* does not teach or suggest "associating at least one monitor specification with a resource specification to form at least one resource monitor instance configuration profile," and "storing the at least one resource monitor instance configuration profile," as recited in independent claims 1, 12, and 23.

With respect to the rejection of the claims 1, 12, and 23, the Final Office Action refers to the following portion of *Lumelsky*:

> Particularly, as illustrated in **FIG. 2**, the service unit (**150**) is represented in terms of an allocation vector (**151**) whose members represent resource allocations for memory (**162**), disk I/O (**163**), network bandwidth B/W (**164**), and CPU resources (**161**). As will be described in greater detail herein, the service unit allocation vector is referred to herein as a "resource envelope" as needed for provisioning of a media service. The resource envelope represents a bound set according to some criteria over critical-resource requirements associated with the provisioning of a media service. Further, the remote authority maintains a "service signature" or meta-data construct (**152**) relating to the characteristics of an associated resource envelope. In general, a service signature comprises service management metadata (**166**) as well as resource management metadata (**176**). It is an aspect of the present invention that such service signature be used to customize the integrated service-oriented management approach to resource management. In particular, a service signature describes information, hints, and recommendations about things such as access rights, privileges and characteristics of services that can use that particular service unit. For example, the service signature could be used to define access rights (**167**) and cost (**169**) characteristics for any particular service unit. The service signature is used as well to deliver hints to the meta-resource about resource management. For example, the service signature could be used to recommend run-time compensation strategies (**178**) to be used to update

the resource envelope for a service unit provided for a given meta-resource type at possibly different loads.

Lumelsky, column 7, lines 28-57.

Lumelsky's system provides means to compensate for differences between actual resource requirements found during the provisioning of a media service and the resource profile associated with a service unit. It is a possibility that the resource envelope projected by a service unit may incorrectly estimate the resource requirements needed to provision the service object. The service signature (150) is one of the ways in which the present invention allows the integration of service management with resource management. *Lumelsky* does not teach or suggest "providing at least one monitor specification, wherein a monitor specification includes a definition of parameters for a resource monitor, and wherein the monitor specification includes both a deployment profile specification, defining a list of parameters that must be defined for each instance of the resource monitor that is deployed, and a response profile specification, defining parameters that are returned by deploying the resource monitor," as recited in independent claims 1, 12, and 23. In addition, *Lumelsky* does not teach or suggest "associating at least one monitor specification with a resource specification to form at least one resource monitor instance configuration profile," and "storing the at least one resource monitor instance configuration profile," as recited in independent claims 1, 12, and 23.

With respect to the rejection of the claims 1, 12, and 23, the Final Office Action refers to the following portion of *Lumelsky*:

> According to the present invention, the remote authority (200) implements a mechanism for configuring heterogeneous meta-resources in terms of homogeneous service-oriented resource units, i.e., the service units. Particularly, the service unit is used to represent a resource allocation commitment from a participating server to be able to provision a particular media service on-demand. A different service unit is associated with each service and that the same service unit definition may result in different resource envelopes across different meta-resources supporting the same media service. Such resource envelope profiles may be time-variant or constant as described within, as will hereinafter be described in greater detail. It is an aspect of the present invention to generate and adapt such resource envelopes for any media service.
> As will be described in greater detail herein, the present invention implements the construct of service bins as a mechanism to enable the co-allocation of resources in a meta-resource. Generation of a service bin is intended to provide a performance envelope over the overall resource requirements for

provisioning of a service. It should be noted that the generation of a resource envelope may be done either at the meta-resource or by a remote party. Either way, techniques are known in the art for generating a performance envelope for various resources. For example, administrators may generate a bin specification by applying a test suite to an application over typical content to generate a resource envelope. The envelope is intended to define a long-term resource allocation that may be, for example, a worst case or a 70th percentile. If a worst case allocation is not used, then there are techniques to, on-demand, compensate for the difference on resource allocation requirements. In particular, in the invention, a shared overflow pool is used to allot such resources on-demand. A ranking of deviations may be used to further optimize the use of this overflow pool, as for example, to set aside such deviations ahead of time. A ranking of deviations may be produced to allow the compensation bin to set aside such deviations ahead of time.

In general, the generation of a resource envelope for a particular service is comprised of the following steps: first, an initial set of service objects is selected according to some criteria such as frequency of use or similarities; second, a resource profile is obtained for each critical resource associated with the provisioning of the service object; third, the resource profile is smoothed into K fixed duration intervals; fourth, for each interval, a resource requirements envelope is calculated. A skilled artisan will appreciate that there are known ways to generate such smoothed performance envelopes for stored continuous media. For example, for an internet TV model based on the streaming of stored MPEG content, there are known ways to retrieve the profile comprising of, at most, K segments; fifth, the extraction of meta-data relating to the characteristics of the envelope and its fit over the representative service objects. For example, an 80% percentile may be used to generate a 2nd-tier envelope where peaks about the 80% are identified on the metadata; finally, storing the resource envelope and meta-data into the service unit database.

Lumelsky, column 8, lines 1-58.

In *Lumelsky*, the remote authority (200) implements a mechanism for configuring heterogeneous meta-resources in terms of homogeneous service-oriented resource units, i.e., the service units. Particularly, the service unit is used to represent a resource allocation commitment from a participating server to be able to provision a particular media service on-demand. A different service unit is associated with each service and that the same service unit definition may result in different resource envelopes across different meta-resources supporting the same media service. Such resource envelope profiles may be time-variant or constant. *Lumelsky's* invention generates and adapts such resource envelopes for any media service. *Lumelsky* does not teach or suggest "providing at least one monitor specification, wherein a monitor specification includes a definition of parameters for a resource monitor, and wherein the monitor specification includes

both a deployment profile specification, defining a list of parameters that must be defined for each instance of the resource monitor that is deployed, and a response profile specification, defining parameters that are returned by deploying the resource monitor," as recited in independent claims 1, 12, and 23. In addition, *Lumelsky* does not teach or suggest "associating at least one monitor specification with a resource specification to form at least one resource monitor instance configuration profile," and "storing the at least one resource monitor instance configuration profile," as recited in independent claims 1, 12, and 23.

With respect to the rejection of the claims 1, 12, and 23, the Final Office Action refers to Figure 7 and the following portion of *Lumelsky*:

> **FIG. 7** depicts the components of service unit resource management at a meta-resource. A service unit signaling adapter (**700**) enables the meta-resource to receive provisioning requests (**705**) in terms of service units. The signaling adapter (**700**) allows the meta-resource to communicate to external parties in terms of service units, provisioning requests, service signatures, and resource envelopes. The service unit management adapter (**700**) enables a remote intermediary controller to interface with resource management in this meta-resource. A service unit database (**710**) provides the service unit management module (SUMM) (**720**) with the resource envelope associated with a particular service unit. The service unit management module (**720**) coordinates the translation of service units to individual resource requirements and interfaces with the service unit mapper (**730**) to place coordinated requests as well as updates for resource allocation across one or more resources. Specifically, the coordinated services to resource mapping (**730**) receives a service bin specification and generates individual resource allocations based on the compensated service unit's resource envelope. Operating system interfaces provide access to individual resources such as CPU (**761**), memory (**762**), network bandwidth (**763**), disk bandwidth and disk storage (**764**). The service unit mapper module (**730**) additionally provides interfaces to the individual resource management interfaces. A run-time compensation module (**735**) computes the necessary adjustments over the resource envelope. The service unit management module (**720**) allows the control of resources in terms of application level units as opposed to individual resource requirements. Resources are thus allocated in terms of application requirements and optimized to local and global cost metrics as opposed to rigid resource utilization. The SUMM enables implementation of run-time adjustments to be made to the service unit envelope as well as run-time adjustments to the service unit weighting function.

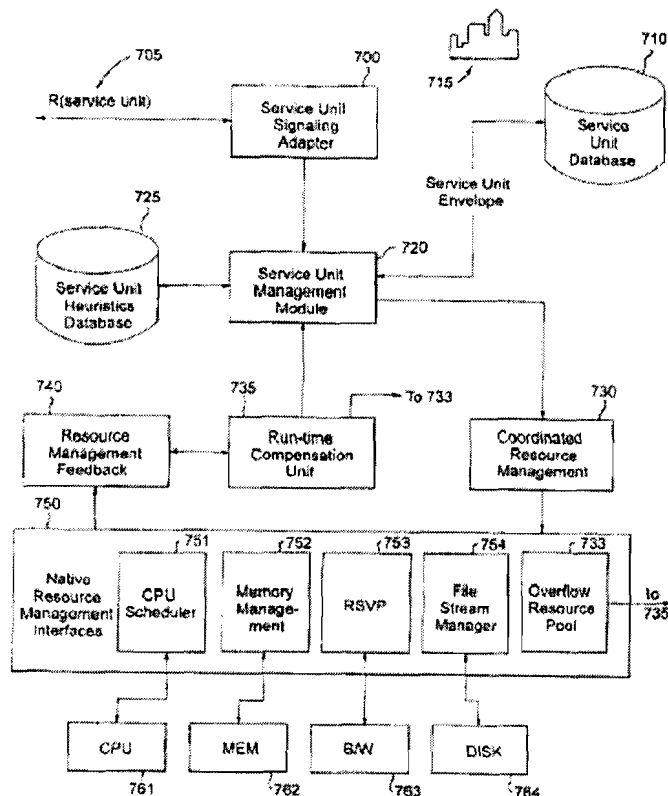*Lumelsky*, column 13, lines 33-67.

FIG. 7

Lumelsky, Figure 7.

With regard to compensation in *Lumelsky*, as the possibility may exist that a resource envelope projected by a service unit may incorrectly estimate the resource requirements needed to provision the service object, existing interfaces are provided by the server operating system to permit monitoring of resource reservation exceptions. The resource management feedback unit (**740**) receives these exceptions and forwards these to the run-time compensation unit (**735**), which in turn computes the departure on the resulting resource envelope utilizing heuristics provided in a service unit heuristics database. Specifically, the resource management feedback module (**740**) is a software handler that maintains an association of individual **resource monitors** to a service unit and triggers a compensation of the resource envelope for a service unit during run-time. Once a service unit is allocated, individual **resource monitors** are started and associated with a common service unit. In case of an allocation exception or predicted under/over usage condition (against that predicted by the service unit's resource envelope) an exception may be fired by any one or more of these individual **resource monitors**. For example, if bandwidth is predicted to be low, the network I/O monitor (not shown) will signal such

condition to the resource management feedback module, which determines whether additional bandwidth needs to be allocated. To make such decisions, the resource management feedback module (**740**) may rely on heuristics or policies. *Lumelsky* does not teach or suggest "providing at least one monitor specification, wherein a monitor specification includes a definition of parameters for a resource monitor, and wherein the monitor specification includes both a deployment profile specification, defining a list of parameters that must be defined for each instance of the resource monitor that is deployed, and a response profile specification, defining parameters that are returned by deploying the resource monitor," as recited in independent claims 1, 12, and 23. In addition, *Lumelsky* does not teach or suggest "associating at least one monitor specification with a resource specification to form at least one resource monitor instance configuration profile," and "storing the at least one resource monitor instance configuration profile," as recited in claims 1, 12, and 23.

With respect to the rejection of the claims 1, 12, and 23, the Final Office Action refers to Figure 8(a) and Figure 8(b) of *Lumelsky*:
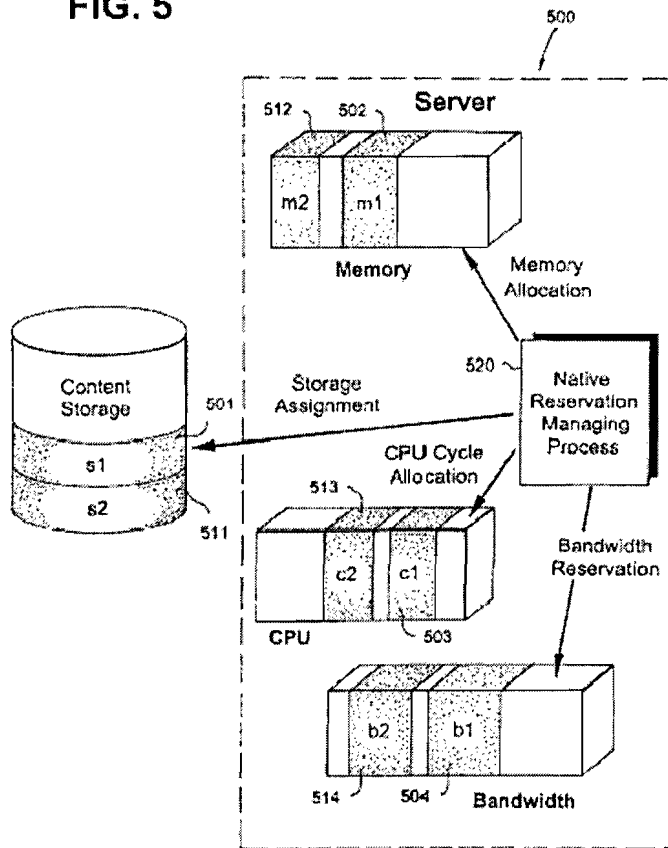

FIG. 8(a)

FIG. 8(b)
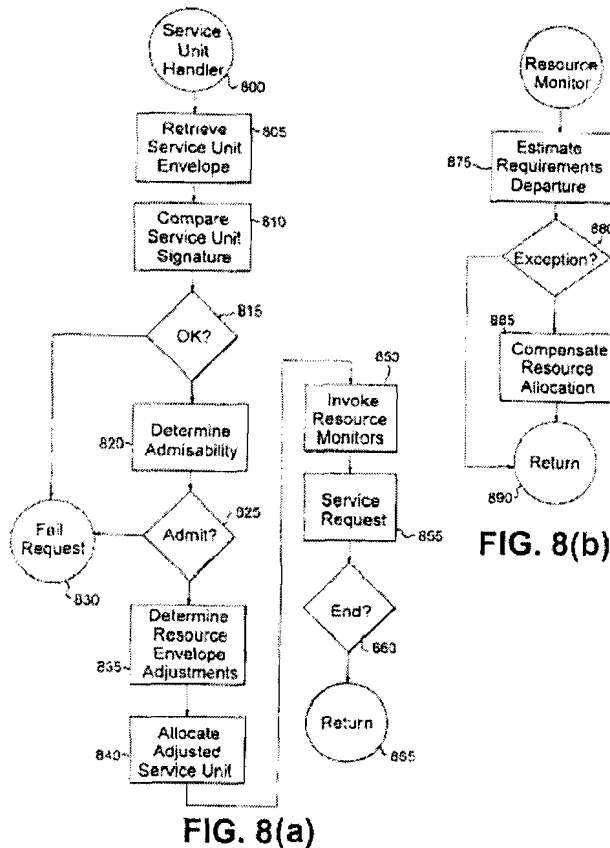
Lumelsky, Figures 8(a-b).

At step (850) of *Lumelsky*, the **resource monitors** are invoked by the operating system of the provisioning meta-resource (server) to monitor actual resources utilized in the provisioning of the requested service which is provided to the client as indicated at step (855). **FIG. 8(b)** of *Lumelsky* is a flow chart, depicting in greater detail, the real-time **resource monitor** process thread invoked at step (850) of **FIG. 8(a)**. Typically, this functionality is standard in most computer operating systems. For example, resources that may be monitored include virtual memory and page hits, stream I/O and buffer management, CPU and CPU load scheduling and priority handling, etc (See **FIG. 7**). As shown in **FIG. 8(b)**, at step (875) the requirements departure is estimated, e.g., the number of I/O buffers needed to stream (e.g., 1 MB) and bandwidth. Techniques such as optimal smoothing of recorded and live video allow estimating reliably these values and determining under/over flow conditions. As it may be the case that the **resource monitor (750)** may not react on the first trigger, the monitored input data may be smoothed due to the nature of conventional operating systems. *Lumelsky* does not teach or suggest "providing at least one monitor specification, wherein a monitor specification includes a definition of parameters for a resource monitor, and wherein the monitor specification includes both a deployment profile specification, defining a list of parameters that must be defined for each instance of the resource monitor that is deployed, and a response profile specification, defining parameters that are returned by deploying the resource monitor," as recited in independent claims 1, 12, and 23. In addition, *Lumelsky* does not teach or suggest "associating at least one monitor specification with a resource specification to form at least one resource monitor instance configuration profile," and "storing the at least one resource monitor instance configuration profile," as recited in claims 1, 12, and 23.

Lumelsky is not directed to the specific needs of provisioning **resource monitors**. *Lumelsky* is directed to provisioning multimedia utilities to paying subscribers. In *Lumelsky*, **resource monitors** are used to monitor resource utilization when provisioning a media service. A native reservation management process (520), as shown in **FIG. 5** of *Lumelsky*, is responsible for monitoring resource consumption. Request statistics are monitored by a Service Control Plane (SCP), which functions as an intermediary control device between clients and servers in a distributed computer network. Existing interfaces are provided by the server operating system to permit monitoring of resource reservation exceptions.

FIG. 5

Lumelsky, Figure 5.

Lumelsky does not teach or suggest "providing at least one monitor specification, wherein a monitor specification includes a definition of parameters for a resource monitor, and wherein the monitor specification includes both a deployment profile specification, defining a list of parameters that must be defined for each instance of the resource monitor that is deployed, and a response profile specification, defining parameters that are returned by deploying the resource monitor," as recited in claims 1, 12, and 23. In addition, *Lumelsky* does not teach or suggest "associating at least one monitor specification with a resource specification to form at least one resource monitor instance configuration profile," and "storing the at least one resource monitor instance configuration profile," as recited in claims 1, 12, and 23. Resource monitors are used to monitor the attributes or states of resources. The present application is directed to a method, apparatus, and computer program product for provisioning these resource monitors. As claimed, a monitor specification includes both a deployment profile specification and a response profile specification. A deployment profile specification defines the parameters that must be defined for

each instance of the resource monitor that will be deployed. A response profile specification defines the parameters that are returned by deploying the resource monitor. *Lumelsky* does not teach these features of independent claims 1, 12, and 23.

In view of the above, Appellants respectfully submit that *Lumelsky* does not teach each and every feature of independent claims 1, 12, and 23, as is required under 35 U.S.C § 102(b). In addition, *Lumelsky* does not teach each and every feature of dependent claims 2-11, 13-22, and 24-25 at least by virtue of their dependency on claims 1, 12, and 23, respectively. Accordingly, Appellants respectfully request withdrawal of the rejection of claims 1-25 under 35 U.S.C § 102(b).

B.2.   Claims 2, 13, and 24

In addition to the above, Appellants respectfully submit that claims 2, 13, and 24 are independently distinguishable from the *Lumelsky* reference. Claim 2 depends from claim 1; claim 13, depends from claim 12; and claim 24 depends from claim 23. *Lumelsky* does not teach or suggest "retrieving a resource monitor instance configuration profile for an instance of a given resource monitor assigned to an instance of a given resource," as recited in claims 2, 13, and 24. In other words, a particular instance of a given resource monitor, that monitors the attributes or states of a resource, is assigned to a particular instance of a given resource, such as a server. A resource monitor instance configuration profile for the particular instance of the given resource monitor that is assign to the particular instance of the given resource is retrieved. *Lumelsky* does not teach or suggest the specific features of these claims. *Lumelsky* does not even mention a resource monitor instance configuration profile.

B.3.   Claims 3-10, 14-21, and 25

In addition to the above, Appellants respectfully submit that claims 3-10, 14-21, and 25 are independently distinguishable from the *Lumelsky* reference. Claim 3 depends from independent claim 1 through dependent claim 2; claim 14, depends from independent claim 12 through dependent claim 13; and claim 25 depends from independent claim 23 through dependent claim 24. Claims 4-10 depend from independent claim 1 through dependent claims 2 and 3; and claims 15-21 depend from independent claim 12 through claims 13 and 14. *Lumelsky* does not teach or suggest "receiving a selection of a given resource monitor to be provisioned for

the instance of the given resource; and storing a monitor configuration profile for the given resource monitor in association with the resource monitor instance configuration profile," as recited in claims 3, 14, and 25. Appellants respectfully disagree that the cited portions of *Lumelsky* teach the specific features of these claims. Figure 1 of *Lumelsky* is an illustration depicting an Internet media utilities environment. Figure 2 illustrates the service units construct as comprising a service signature and a resource envelope. Figure 4 depicts the relationships between service units, service bins, storage bins, global and local pools, resource envelopes, and service signatures within a meta-resource. The cited portions of *Lumelsky* does not mention provisioning a selection of a given **resource monitor** or storing a **monitor** configuration profile. To the contrary, *Lumelsky* provisions media resources to a paying subscriber. *Lumelsky* states that its mechanisms are particularly for administering, deploying, and configuring media servers in an Internet media utilities environment.

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CLAIMS APPENDIX

The text of the claims involved in the appeal are:

1.   A method for provisioning resource monitors, the method comprising:

providing at least one monitor specification, wherein a monitor specification includes a definition of parameters for a resource monitor, and wherein the monitor specification includes both a deployment profile specification, defining a list of parameters that must be defined for each instance of the resource monitor that is deployed, and a response profile specification, defining parameters that are returned by deploying the resource monitor;

providing at least one resource specification, wherein a resource specification includes a definition of parameters that must be defined for each instance of a resource, and wherein the resource is the resource to be monitored;

associating at least one monitor specification with a resource specification to form at least one resource monitor instance configuration profile; and

storing the at least one resource monitor instance configuration profile.

2.   The method of claim 1, further comprising:

retrieving a resource monitor instance configuration profile for an instance of a given resource monitor assigned to an instance of a given resource.

3.   The method of claim 2, further comprising:

receiving a selection of a given resource monitor to be provisioned for the instance of the given resource; and

storing a monitor configuration profile for the given resource monitor in association with

the resource monitor instance configuration profile.

4.   The method of claim 3, further comprising:

      receiving at least one value for a parameter for the given resource monitor,

      wherein the monitor configuration profile includes the at least one value for a parameter.

5.   The method of claim 4, wherein receiving at least one value for a parameter for the given resource monitor includes presenting an interface to define parameters for the given resource monitor based on a monitor specification for the given resource monitor.

6.   The method of claim 3, further comprising:

      deploying the given resource monitor in accordance with the monitor configuration profile.

7.   The method of claim 6, wherein deploying the given resource monitor further includes:

      determining whether manual intervention is required for the given resource monitor; and

      responsive to manual intervention being required for the given resource monitor, interacting with an administrator to receive at least one value for a parameter.

8.   The method of claim 3, further comprising:

      storing response parameters and values in a response profile.

9.   The method of claim 8, further comprising:

deprovisioning the given resource monitor using the response parameters and values in the response profile.

10.   The method of claim 3, further comprising:

capturing output parameters and values of a monitor deployment and storing them to the response profile.

11.   The method of claim 2, wherein the instance of the given resource is a resource of a type selected from the group consisting of server hardware, network hardware, storage hardware, operating system software, database middleware software, application software, and monitoring software.

12.   An apparatus comprising a processor running a provisioning system in a network data processing system for provisioning resource monitors, the apparatus comprising:

means for providing at least one monitor specification, wherein a monitor specification includes a definition of parameters for a resource monitor, and wherein the monitor specification includes both a deployment profile specification, defining a list of parameters that must be defined for each instance of the resource monitor that is deployed, and a response profile specification, defining parameters that are returned by deploying the resource monitor;

means for providing at least one resource specification, wherein a resource specification includes a definition of parameters that must be defined for each instance of a resource, and wherein the resource is the resource to be monitored;

means for associating at least one monitor specification with a resource specification to form at least one resource monitor instance configuration profile; and

means for storing the at least one resource monitor instance configuration profile.

13.   The apparatus of claim 12, further comprising:

means for retrieving a resource monitor instance configuration profile for an instance of a given resource monitor assigned to an instance of a given resource.

14.   The apparatus of claim 13, further comprising:

means for receiving a selection of a given resource monitor to be provisioned for the instance of the given resource; and

means for storing a monitor configuration profile for the given resource monitor in association with the resource monitor instance configuration profile.

15.   The apparatus of claim 14, further comprising:

means for receiving at least one value for a parameter for the given resource monitor,

wherein the monitor configuration profile includes the at least one value for a parameter.

16.   The apparatus of claim 15, wherein the means for receiving at least one value for a parameter for the given resource monitor includes means for presenting an interface to define parameters for the given resource monitor based on a monitor specification for the given resource monitor.

17.   The apparatus of claim 14, further comprising:

means for deploying the given resource monitor in accordance with the monitor

configuration profile.

18.   The apparatus of claim 17, wherein deploying the monitor further includes:

means for determining whether manual intervention is required for the given resource

monitor; and

means, responsive to manual intervention being required for the given resource monitor,

for interacting with an administrator to receive at least one value for a parameter.

19.   The apparatus of claim 14, further comprising:

means for storing response parameters and values in a response profile.

20.   The apparatus of claim 19, further comprising:

means for deprovisioning the given resource monitor using the response parameters and

values in the response profile.

21.   The apparatus of claim 14, further comprising:

means for capturing output parameters in a deployment output configuration profile.

22.   The apparatus of claim 13, wherein the instance of the given resource is a resource of a

type selected from the group consisting of server hardware, network hardware, storage hardware,

operating system software, database middleware software, application software, and monitoring

software.

23.   A computer program product comprising a computer recordable-type medium having

encoded thereon computer usable program code for use within a data processing system for

provisioning resource monitors, the computer program product comprising:

computer usable program code for providing at least one monitor specification, wherein a

monitor specification includes a definition of parameters for a resource monitor, and wherein the

monitor specification includes both a deployment profile specification, defining a list of

parameters that must be defined for each instance of the resource monitor that is deployed, and a

response profile specification, defining parameters that are returned by deploying the resource

monitor;

computer usable program code for providing at least one resource specification, wherein a

resource specification includes a definition of parameters that must be defined for each instance

of a resource, and wherein the resource is the resource to be monitored;

computer usable program code for associating at least one monitor specification with a

resource specification to form at least one resource monitor instance configuration profile; and

computer usable program code for storing the at least one resource monitor instance

configuration profile.

24.   The computer program product of claim 23, further comprising:

computer usable program code for retrieving a resource monitor instance configuration

profile for an instance of a given resource monitor assigned to an instance of a given resource.

25. The computer program product of claim 24, further comprising:

computer usable program code for receiving a selection of a given resource monitor to be provisioned for the instance of the given resource; and

computer usable program code for storing a monitor configuration profile for the given resource monitor in association with the resource monitor instance configuration profile.

EVIDENCE APPENDIX

There is no evidence to be presented.

RELATED PROCEEDINGS APPENDIX

There are no related proceedings.